GARDEN AND FOREST.

PUBLISHED WEEKLY BY

THE GARDEN AND FOREST PUBLISHING CO.

OFFICE: TRIBUNE BUILDING, NEW YORK.

Conducted by . . . . . Professor C. S. SARGENT.

ENTERED AS SECOND-CLASS MATTER AT THE POST OFFICE AT NEW YORK, N. Y.

NEW YORK, WEDNESDAY, JUNE 1, 1892.

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Good Taste in Our Cemeteries.

WE spoke last week of the views of certain prominent American cemetery superintendents, as expressed at the last meeting of their association, with regard to the aspect which our rural cemeteries should wear. We quoted their own words to show that their ideal of a cemetery is a simple, peaceful place in which a natural, rather than an artificial, type of beauty has been secured; a place not crowded with costly and showy monuments or rendered garish by gaudy flower-beds; a place neatly kept, although not trimmed and polished into the semblance of a public park or a private garden. And we said that, according to their witness, this ideal would be more often attained were it not for opposition to the plans of superintendents on the part of their employers.

This opposition was not dwelt upon in any carping or militant spirit by any of the speakers; but all the addresses clearly suggested it as a thing which need not be dwelt upon because already so generally recognized as the chief bar to the improvement of the average American cemetery. Here and there we find in the report of the speeches a more definite statement, as, for instance, with regard to the "prevailing anxiety" of lot-owners to "compete with each other" in the erection of conspicuous, ugly monuments; and, again, with regard to the popular demand that flowers be planted "profusely," and the difficulty in meeting specialized desires of this sort—of having any assurance that the flowers will be planted artistically rather than ridiculously.

"When we have said all we can," remarked one superintendent, "there still remains the fact that the public are the patrons of every cemetery association. The public, consisting of many men of many minds, to their wishes and desires we must all, to a great extent, conform. We may denounce pathways, stone-work, flowers, shrubs and borders, and lay down methods of burial and selling of lots, and advocate perpetual care, but we cannot adopt any hard and fast line of refusal or enforce arbitrary rules; even by-laws have occasionally to be overlooked to satisfy the public." And another speaker drew a picture of the appearance of a cemetery to which he was appointed, which has, we think, a certain typical significance. "Every lot-holder," he said, "had been permitted to plant and decorate as he desired. To add to this, seedling and volunteer growth abounded, and the management was permeated with the sentiment of 'Woodman, spare that tree.' Receptacles for flowers of every imaginable construction—iron, wood, tin, glass, china—the greater number of them unfit for any other purpose, were considered just the thing for decorating the cemetery-lot. No uniformity of grade existed, some lots being high, some low; there were big mounds and little mounds, and many of them transformed, becoming depressions in the ground, and many of them selfishly enclosed with several hundred iron railings in various conditions of neglect. . . . In one day I swept off the lots six great cart-loads of conch-shells and their contents. In the ideal cemetery," continued this speaker, "there are no paths nor space laid out for walks. The boundaries of the lots are out of sight—no posts, no foot-stones, no head-stones, no mounds to designate a grave, but a succession of beautiful lawns broken only by a single monument upon a lot. The irregularly shaped lots allow space for the planting of trees in groups and single specimens and the arranging of flowering shrubs for foliage effects."

The contrast between these two pictures is instructive, and shows pretty fairly what a rural cemetery often is when controlled by the taste of the community and what it may be if really controlled by such superintendents as are now available. To some readers the ideal picture may seem exaggerated. No person of taste will insist that the boundaries of lots should be conspicuously marked, that graves or the borders of lots should be turned into crazy-quilts of flowers, or that monuments should be so numerous and striking that the cemetery will look more like a marble yard than a place of eternal repose. But to limit owners to a single monument in each lot may seem to be an exaggeration of the desire for a "natural" effect. In truth, it is not desirable that the true character of a cemetery should be so carefully concealed that it might be taken for a park or an uncultivated piece of nature. It ought, of course, to look like a burial ground, although like a simple, quiet, peaceful, unostentatious burial ground. And, if monuments are kept of small size and are designed in simple yet artistic ways, there is no reason why lot-owners should each be limited to one. There is, however, a good reason for doing away with those grave-mounds to which traditional sentiment so strongly clings. In the first place, they are constant temptations to the introduction of floral ornamentation of too striking and gaudy and, at the same time, too ephemeral a sort. And, in the second place, if they are covered with turf, it is hard to keep them and their immediate surroundings neat. Labor is so costly in this country that the lawn-mower must be the chief if not the only aid toward neatness in the lawns. And mounds over which the lawn-mower cannot pass are almost sure to be detrimental to the general effect of a cemetery. So it also is, of course, with boundary stones around the lots; even if they are kept so low that they do not unpleasantly affect the eye, it is impossible properly to cut the grass around them.

In general, the ideas of this Association of Superintendents, as expressed by the chief speakers at their last meeting, seem worthy of cordial endorsement; and we feel with them, not only upon their evidence but also upon that of our own observation, that the chief thing now to be accomplished is the education of the public taste in such matters. The taste of many superintendents is evidently far in advance of that of their patrons, and it is probable that even those whose taste is still on a level with this would quickly meet the wishes of their patrons should these take a better direction. No person in charge of a

cemetery, even if his own taste is still crude, is likely to cling, against the desires of his patrons, to traditional crudities, mistakes and abuses which largely increase the difficulties of his task and force him to spend a great deal of money to preserve his domain even in a tolerably neat condition.

There is only one serious fault which we find in any of the addresses from which we have quoted. This is a fault in expression, in terminology, rather than in idea. Nevertheless, so strong is the influence of terms upon thought, that it may give rise to mistaken ideas in other minds. The excellent address of Mr. Scott, of Chicago, in which he pleaded the cause of natural beauty in the cemetery, was unfortunately entitled "Nature versus Art," and was in answer to the question, "Should not Cemeteries present more of Nature and less of Art?" Had "artificiality" been substituted for "art" in these titles the subject would have been more justly presented. What the speaker was really pleading for was not nature, which means beauty that man's hand has played no part in creating, but a kind of art in which the leadings and teachings of nature's types of beauty are discreetly followed. A cemetery planned and maintained as Mr. Scott would have it is a true work of art. One that is badly designed, untidily kept, and overcrowded with inappropriate monuments and flower-beds, is not a work of art. It is an ugly, artificial, inartistic thing. In condemning it and its customary contents, Mr. Scott need not have protested, "Far be it from me to condemn art" in its proper place. For he was really pleading the cause of art while nominally pleading the cause of nature. The fact that practical considerations with regard to ease in labor and cheapness of methods largely entered into his considerations does not invalidate his position as an advocate of true art. There are many artistic enterprises in which practical considerations are very important; and, as in the case of the architect, for example, he is the best artist who can to the best advantage deal with questions of every-day convenience, cost of construction, ease of maintenance and the like while working out with the highest taste and skill the artistic side of his problem.

A writer in *Gartenflora* recently complained with bitterness of the aspect of florists' shops in Berlin. Here in America there is sometimes occasion for just complaint that florists fail to secure the highest effect which an artistic arrangement of their stock might produce. But in Berlin it seems that errors of commission are much more distressing than the occasional errors of omission here. For instance, the present fashion, says the writer in *Gartenflora*, is to encircle all blossoming plants which are offered for sale with cones of the most gaudily colored "calico-paper," so that the plants themselves are almost concealed from sight, and, of course, when they are visible, show to the worst advantage. To this custom the writer attributes a great recent decrease in the sale of potted-plants, although he explains it by saying that it springs from the natural desire of purchasers not to soil their hands and clothes by contact with the pots. This explanation we may in turn explain by saying that our practice of having all goods delivered at our homes by the shop-keeper does not largely prevail in Germany, where even the family marketing is usually carried home by the house-wife or her servants. The writer then says that, in another direction, good taste is increasing, for the once beloved "mosaic bouquet" has given place to what he calls the "true German bunch of flowers." To an outsider it may seem that this new taste for naturally cut flowers may have been imported into Germany from Paris or America. But, at all events, the Berliners might learn from Paris to use sheets of pure white paper for enveloping flowering plants. Were the innumerable white cones removed from the plants, which once a week crowd the great steps surrounding the church of the Madeleine, the gayety and beauty of one of the most charming scenes that Paris offers would be grievously impaired.

The White Oak at Shandy Hall, Maryland.

We have already published several pictures of the White Oak, but in order to give a complete idea of any species it is necessary to study many specimens, both in full foliage and in the winter, when the absence of leaves shows more clearly the texture of the bark and the ramification of the branches. The White Oak, when it has room for full development, is one of the noblest of our deciduous trees, and the specimen which is illustrated on page 259 is one of the comparatively few which have escaped the general destruction of the primeval forests in the earlier-settled portions of the country. It is situated at Shandy Hall, in Maryland, about eight miles below Havre de Grace, on the mainland opposite Spesutiæ Island. The tract of land which has borne the name of Shandy Hall for several generations was taken up on the first settlement of Harford County, and the original deeds, in the possession of Mrs. Anna E. Barnard, bear the royal seals and are dated 1640. The property has always remained in the possession of the Hall family, which is an unusual thing in our country, where local attachment does not seem to be developed as strongly as it is in the older countries of the world. That this tree is very old is plain not only from its size, but from the fact that in a deed dated 1676 it is called the Big Spreading Oak, and a boundary stone, which is alluded to in the deed as standing under the tree, remains there still. Near the ground the trunk of this tree measures thirty-six feet in circumference, and just below the first limb it is twenty-two feet in circumference. The spread of the branches is unusually large, and covers a circle of 122½ feet in diameter. It is still in good health, and seems sufficiently vigorous to last another century at least.

Mid-May in West Virginia.

That enchanting fortnight, when the fruit-trees seem to have foliage of flowers, is over now, and all the loveliness of Apple-bloom is past. Here and there a massive, well-rounded Horse-chestnut shows its great white clusters, and a deep-red variety is very handsome. Horse-chestnuts seldom combine effectively with other trees; they are best in isolated positions or in clumps of three or four. The shade they throw is so dense that grass does not flourish beneath them; it is well to take this fact into consideration when designing the home-grounds, and not plant them too near the dwelling.

The latest of the Amelanchiers is the variety Floribunda. This blooms about three weeks after the earlier Shad-bushes. The petals of the small-flowered clusters are rounded, not elongated like the other varieties, and the pink-tipped stamens are very pretty; but the plant lacks the fragile elegance of A. Canadensis. It has somewhat the appearance of a blossoming Pear, except that the flowers are smaller, and it makes a pretty little tree from ten to twenty feet in height. The bloom of this variety is now fading.

The flowers of the common Snowballs and the Japanese Viburnum plicatum are gradually whitening under the warm sunshine. Weigelas are opening their buds, and the day of the flowering Dogwoods is nearly over.

Coronilla Emerus, Cytisus purpureus and Caragana Chamlagu now represent the Pulse family in the shrubberies. The Cytisus is quite covered with its papilionaceous blossoms of pink and cream, and is an exceedingly pretty, small shrub; useful for planting close to a piazza or on the outer margin of shrubberies. Like Daphne Cneorum, one wants it close at hand and apart from free-growing shrubs, which would rob it of light and nourishment. It remains a long time in flower.

Some upright or bush Honeysuckles are now flowering; but perhaps the queen of the shrubbery at present is Paul's beautiful double variety of the Hawthorn, Crataegus Oxyacantha. Its flowers look like small double roses, of a rich carmine color, and the tree seems perfectly healthy, free from insects, and a more rapid grower than most Thorns.

Last year, and the year before that, we found the first rose on the third of May; but the cold spring of this year has retarded all vegetable growth, and it was not until May 18th that the first Cinnamon and Scotch Roses ventured to disclose their beauty. A few more days of the warm sunshine we are now having will transform the home-grounds into a Rose-garden; an Eden into which, alas! the enemy will find

entrance in the shape of myriads of bugs and slugs, the inevitable accompaniment of the blooming Rose.

Eleagnus longipes is now flowering profusely. The tubular, four (sometimes five) parted blossoms closely scattered over the twigs are cream-colored when they first appear, yellowing with age. They have a strong, not altogether delightful, odor, by which the bees find them out and hasten to the revel it proclaims. The Barberries also hold out many seductions to men and bees, and charm more senses than one. Nothing can be finer than a tall, graceful purple Barberry in full bloom, standing in the sun. Its yellow petals have plum-colored markings on the under sides, to match the rich coloring of the leaves and young twigs. These Barberries need bright sunlight to develop their beauty. They are dull of hue when planted in the shade; the outer leaves are always richer in wine shades, the inner foliage usually reverting to green.

Several fine Spiræas are now at their best. The long drooping wreaths and garlands of S. Van Houttei have a snowy whiteness and grace which makes the shrub conspicuous at a distance, and it rather gains than loses by close inspection.

S. Cantoniensis (known in many nurseries as S. Reevesiana) is coming into flower. I learn that it cannot always be trusted to live through New England winters, but in this latitude it is one of the very best spring-flowering shrubs.

Nevuisia Alabamensis is still beautiful with its delicate flowers of white and green. These last a long time, and know how to grow old gracefully; the absence of petals preventing the unsightly appearance many shrubs present in the fading stages.

Japan Maples are in full foliage, and their colors are at their brightest. The hot suns of July and August will dull them, but they brighten again under the skies of autumn.

The fresh green of the new growth on many conifers enlivens the sylvan picture; and all of the deciduous trees, with one exception, are now in leaf. This exception is an Acacia or Albezzia, of whose proper name I am doubtful; a beautiful, small tree, with foliage resembling a Sensitive Plant, which is described in some nurserymen's catalogues as Acacia Memu or Japanese Acacia, and is said to have pink flowers. Ours has never bloomed, and is always the very last of our plants to unfold its beautiful leaves.

Honey Locusts, Paulownias and Paper Mulberries are among the latest of trees to leaf, but these are all well under way and have made great progress in the last two days.

The Red-branched Dogwood is no longer worthy of the name, its brilliant coloring having passed away, or being confined to the twigs that bear the flower-clusters. It is at all seasons a handsome shrub.

Rhododendrons are beginning to bloom, and many Azaleas are now in their prime. The hardy Azalea is a plant that requires very skillful management. The colors are so apt to quarrel, and to require separation after the groups are formed. Such dissension in one family is unfortunate. I am inclined to prefer the wild Azaleas to any of the imported varieties; the colors are not so glaring. Of course, the bright magenta and the flame-colored types should never be planted in juxtaposition, yet how often this is done. If perfect accord is wanted in the garden, they should not be in hailing distance of each other. Groups of Azaleas of harmonizing hues are much more effective than single specimens, and it is well to plant them where they will have some dark evergreens for a background.

Rose Brake, West Va. *Danske Dandridge.*

A Sequence of Flowering Cherries.

WRITERS on Japan constantly tell of the love the Japanese have for flowers, of the various favorite varieties, and of the national fêtes in honor of them. We are told that one of the plants so highly honored is the Cherry, and that every spring-time there are Cherry-blossom festivals which have something of a national character. It frequently happens that the illustrations of Japanese subjects furnished by artists, in which Cherry-blossoms are supposed to be represented, give us what appear to be Peach or Apricot flowers, and it is quite likely that they should have been called so, from a correct and botanical point of view.

That there are most beautiful species or varieties of flowering Cherries in Japanese gardens we know by a number of plants which have been introduced into cultivation in Europe and America. One of the earliest-flowering of these, as it is of all the species with which we are acquainted, is what is considered to be Prunus pendula, or a form of it, which has been received from nurseries under the name of P. (or Cerasus) Sieboldii pendula flore rosea and Cerasus Japonica rosea pendula. This season the first blossoms of a particular plant opened about April 25th. It was in full bloom about May 2d, and continued to be a conspicuous and very beautiful object for fully ten days longer.

The flowers, which are produced in fascicles of three or four from a bud, and on long slender stalks, are pale rose-colored, and appear before there is any indication of leaves. The calyx and calyx-lobes and portions of the flower-stalks are of a dark red color. The flowers are produced in great profusion, and apparently there is no appreciable variation in their abundance every year, which adds much to the value of the plant for ornamental purposes. The fruit is very small, being hardly larger than a pea, of a dark red color, sour and with little pulp. It has not been produced in sufficient abundance here to be ornamental on the plant in the fruiting season, so that, except for the blossoms and its pendulous habit, it has no other special claim for ornament or utility. Its specific name of pendula is well applied, for, although the main branches are horizontal or diverge from the trunk at an upward angle, they ultimately assume a widely arching form, the extremities and all the lateral branches being pendent or pendulous. The largest specimens here are now from fifteen to eighteen feet high, and the indications are that they will not grow much higher.

A plant of similar habit, but with variations in the leaves and color of the flowers and some minor details, is sold from the nurseries under the long name of P. (or Cerasus) Sieboldii pendula flore carneo, although the pendula is sometimes left out. It is also distributed as Cerasus Japonica pendula rosea, and under other names. From a horticultural standpoint its peculiarity and value consist in its flowers being of a deeper red color than those of P. pendula. As noticed here it blossoms a day or two later, and its branches have a more angular and less graceful habit. Its fruit is similar to P. pendula. Whether they are distinct varieties, from a botanical standpoint, should be proved by raising each from seed. The darker-flowered form is generally considered not as beautiful as the other variety, whose blossoms are so peculiarly and delicately colored as at once to suggest something Japanese, and which is not surpassed in beauty by any other tree of its class of which we know.

Both of these grow exceedingly well when grafted on the common Cherry. They should be grafted so that the point of insertion is at or below the surface of the ground, because the Cherry-stock apparently grows much faster than the cion, and unnatural disproportions in the trunk are always a serious disfigurement, and to be avoided. In specimens in the Arboretum, grafted at the ground on common Cherry, the stock has developed into a large woody mass or base, upon which the trees seem to rest.

There are flowering Cherries from Japan and China which belong to a different type, and which are passing under a variety of names. These are small trees, with closer affinities with, and aspect more like, the common Cherries of our gardens, but differing from them in having conspicuously branched or forked flower-stalks, several flowers being attached by their pedicels to a single stalk common to them all, instead of every flower appearing to have a separate stalk from near the base or bud. There are two distinct forms, and although both have sometimes been placed under the Asiatic species known as Pseudo-Cerasus, they are probably representatives of very distinct species. Both of the kinds most common in cultivation have double or semi-double flowers. The earliest to blossom, the first flowers appearing about the first week of May here, blooms before the leaves have fairly expanded, and has petals of a rosy white or bright rose-color. Its leaves are of a dark green color, and are quite pubescent beneath. The flowers persist for two weeks or more in good showy condition. Among other names this plant is to be had from nurseries as P. (or Cerasus) Pseudo-Cerasus rosea plena and as Cerasus Watereri.

The other type comes into bloom a full week later. Its blossoms appear with the foliage, and are of a clear china white, the outer petals sometimes flushed with a rosy color, the whole flower when old often having a roseate tinge. It is characterized by lighter green leaves, with smooth leaf-stalks, smooth and shiny on the upper surfaces and glabrous and pale beneath. The calyx is only five-parted, while in the pubescent and dark flowered form there are usually seven or eight divisions. There are numerous other points of difference, and when the plants are seen growing side by side there appears good reason to keep them botanically distinct. The white-flowered form is known by nurserymen as the Double Chinese Cherry, P. (or Cerasus) serrulata and P. Sieboldii alba plena. It is apparently not so floriferous as the other. Neither of these Cherry-trees, as we have them, assumes a regular form

but are inclined to be rather one-sided in habit, and from data at hand can hardly be expected to attain a greater height than from ten to fifteen feet. They can be more readily grown from cuttings than many others of the same family, but such plants are found to grow so slowly that it is better to propagate by grafting in the usual way.

While none of the species already mentioned attain large size, the double-flowered form of the European Bird Cherry (P. Avium) becomes a stately tree, and some old specimens in this vicinity, now thirty or forty feet in height, have been most beautiful objects with their heavy loads of snowy white double flowers on long stalks in clusters of several from a bud. The period of best bloom is usually about the middle of May here, the flowers being simultaneous with those of the white-flowering Japanese Cherry just mentioned. No double-flowering Cherry surpasses it in effective beauty of its bloom, and since it becomes a large tree it requires room for growth and full development. This tree is to be obtained as P. (or Cerasus) Avium alba plena or P. Avium multiplex. Instead of P. Avium we occasionally find it classed as P. Cerasus, which is a separate and distinct species, and from which a double form has also been derived. This is sold by nurserymen as P. Cerasus ranunculiflora, or flore pleno, or Cerasus Caproniana ranunculiflora or multiplex. In the confusion of names it is also occasionally found under P. Avium, from which it may be distinguished by its perfectly glabrous, shining, almost sticky leaves, which appear much later than in the other variety. Its blossoms, also, do not begin to develop until about two weeks after the first flowers of the double-flowering P. Avium are seen, and it is the latest of the strikingly ornamental Cherries to blossom. The flowers are quite as double as those of the other species, but are less graceful and have a greenish centre, and the tree does not attain anything like such a large size.

Arnold Arboretum. *J. G. Jack.*

New or Little-known Plants.

Asarum Crux-Andræ.

ASARUM is a small east temperate North American and Antillean genus of a few subfruticose plants with black dotted leaves and solitary yellow flowers, of the Hypericum family, principally distinguished from the true Hypericums by their four, instead of five, unequal sepals, their numerous distinct, not clustered, stamens, and ovoid capsules. The species are little known in gardens, although Asarum Crux-Andræ, of which a figure appears on page 257 of this issue, in spite of the fact that it is rather delicate in cultivation, is a good subject for the rock-garden or the margins of small shrubberies, as the habit of this little plant, which, under favorable conditions, spreads into broad mats of bright foliage studded during several weeks in summer with clear yellow flowers, is well suited for such purposes. The much-branched stems rarely rise more than four or five inches above the ground, and are thickly clothed with small narrow obovate-oblong leaves, furnished with two glands at their bases. The shape of the flowers is interesting, and to their peculiar form is due the name by which this plant is known, St. Andrew's Cross. Of the four sepals the two outer are broad, flat and ovate, and the two inner are minute and almost hidden by the petals, which are linear-oblong, acute, arranged in the form of an X, or St. Andrew's Cross.

Asarum Crux-Andræ is not rare on the island of Nantucket; it is rather a common plant in the New Jersey Pine-barrens, and ranges to Virginia, southern Illinois, eastern Nebraska and eastern Texas. It has been an inhabitant of the Arnold Arboretum for several years, but it is not very hardy here, and demands dry, rather sandy, well-drained soil and careful protection in winter.

Of the other species of the genus, none of which appear to have been introduced into gardens, A. pumilum inhabits the sandy Pine-barrens of Georgia and Florida; A. hypericoides, a taller plant with erect stems sometimes two feet in height, ranges from our south Atlantic and Gulf states to the West Indies; A. stans, with large broad petals and showy flowers, is distributed from New Jersey along the coast of Texas, and is a handsome plant, which may be expected to make a useful addition to the list of small garden-shrubs; and A. amplexicaule, an erect-stemmed plant with large clasping leaves and bright yellow flowers an inch in diameter, is a native of the south Atlantic states and of Cuba. *C. S. S.*

New Orchids.

Dendrobium × Rolfeæ, Sander. — A charming hybrid, raised in the establishment of Messrs. F. Sander & Co., of St. Albans, from D. primulinum crossed with the pollen of D. nobile. It has large delicate-colored flowers, in which the influence of the pollen parent decidedly preponderates. —*Gardeners' Chronicle*, April 23d, p. 522.

Vanda Arbuthnotiana, Kränzlin.—A species allied to V. Roxburghii, with golden-yellow flowers transversely striped with purple. It is a native of the Malabar coast, and was introduced by Messrs. F. Sander & Co., of St. Albans.—*Gardeners' Chronicle*, April 23d, p. 522.

Cattleya Alexandræ, L. Lind. & Rolfe.—A very remarkable species, with long peduncles fifteen to eighteen inches long, and bearing six to ten flowers at the apex. These have the general shape of those of C. Leopoldii, the sepals and petals being of a coppery brown tint, shaded with violet on the undulate margins, and the lip violet-rose.—*Gardeners' Chronicle*, April 23d, p. 522.

Cypripedium exul, O'Brien.—A Siamese species, introduced in 1891 by two or three different firms, which has recently flowered for the first time in Europe. It is the C. insigne, var. exul, of Ridley, but is specifically distinct, and in several respects is more nearly allied to C. Druryi. It received an award of merit from the Royal Horticultural Society on April 19th last, when exhibited by R. I. Measures, Esq., of Camberwell.—*Gardeners' Chronicle*, April 23d, pp. 522, 523, fig. 77; also p. 535.

Cattleya × Burberryana, Sander.—A new hybrid raised in the establishment of Messrs. F. Sander & Co., of St. Albans, who received a first-class certificate for it from the Royal Horticultural Society on April 19th last. Its parentage is stated to be "C. imbricata × ♀ [? × intricata] superba ♂." The flowers are said to resemble the latter in shape, the sepals and petals white tinged with pink, and the front lobe of the lip rich crimson.—*Gardeners' Chronicle*, April 23d, p. 535.

Cattleya × Philo, Veitch.—A hybrid raised in the establishment of Messrs. James Veitch & Sons, of Chelsea, from C. mossiæ crossed with the pollen of the rare C. iricolor. The sepals and petals are blush-white, with a faint yellow tinge, the front of the lip crimson with a blush-white margin, the middle of the lip yellow, and the base crimson with whitish veining. It received an award of merit from the Royal Horticultural Society on April 19th last.—*Gardeners' Chronicle*, April 23d, p. 535.

Cypripedium × Huybrechtsianum, Vervaet.—A name applied to a hybrid raised between C. hirsutissimum and C. Spicerianum, which particular cross has already received no less than three distinctive names. Chronologically arranged these are C. × Medeia, C. × Ceres and C. × Vanmolianum.—*Gardeners' Chronicle*, April 30th, p. 554.

Kew. *R. A. Rolfe.*

Plant Notes.

Some Recent Portraits.

IN the May issue of *The Botanical Magazine* are figured Lilium Lowii (t. 7232), another of the fine Lilies which recent explorations of Upper Burmah have brought to light. Its nearest allies are Lilium Nepalense, recently figured in the *Magazine*, and Lilium Bakerianum. The plant is described as producing a glabrous stiffly erect stem four feet long from a globose bulb two inches in diameter with small lanceolate scales. The leaves are numerous, scattered, sessile, linear, spreading, and two or three inches long. The flowers, which are borne on long peduncles

furnished with a linear leaf at the middle, are produced in about three-flowered corymbose umbels; they are funnel-shaped, three or four inches long, the expanded limb three inches across, with oblong-lanceolate segments, those of the inner and outer rows nearly uniform, an inch broad in the middle, white, tinged with green on the outside, on the inside, white above, white, tinged with yellow-green, below, and covered, except in the centre, with minute claret-brown spots. This fine plant is named in honor of its introducers, Messrs. Hugh Low & Co., the well-known nurserymen, with whom it flowered in July of last year.

Restrepia striata (t. 7233), a curious Orchid from New Granada, interesting to botanists from its peculiar structure, but of little value from a horticultural point of view.

Lilium Grayii (t. 7234), a well-known plant, first gathered by Dr. Asa Gray in 1840 on Roan Mountain, in North Carolina, and first figured in one of the early numbers of this journal (i., 19, f. 4). The portrait in *The Botanical Magazine* represents dark red flowers, and was made from a plant which flowered at Kew during the summer of 1891, although the flowers are usually bright yellow, like those of the ordinary form of the closely allied Lilium Canadense.

Fig. 49.—Asarum Crux-Andræ.—See page 256.

Pilocarpus pennatifolius (t. 7235), a small shrub of the Rue family, and a native of Brazil, with large unequally pinnate leaves and slender racemes, a foot in length, of small red-brown flowers. This handsome shrub was introduced into European gardens forty years ago by Libon as an ornamental plant. Much later it has been learned that it is one of the principal sources of the drug Jaborandi, used in Brazil as a sialogogue and diaphoretic. The parts used are the dried leaves, which leave in the mouth an aromatic, slightly bitter, warm taste, and contain a volatile oil and an alkaloid, also volatile, to which the name *pilocarpine* has been applied.

Didymocarpus lacunosa (t. 7236), a lovely little plant of the Gesneræa family, and a native of Penang, with intensely violet-blue nodding flowers, and a recent introduction of the Messrs. Veitch.

The Garden, in its issue of May 7th, contains colored plates of Erica hyemalis, figured for the first time in this journal a few weeks ago, and of its white variety.

Foreign Correspondence.

London Letter.

NORTH AMERICAN CYPRIPEDIUMS.—We have a beautiful display of these plants in the cool Orchid-house at Kew, for which we are indebted to the curator of the Harvard Botanic Gardens and to Mr. Allen. The roots, which were received last autumn, were planted in pans in peat soil, and placed in a cold frame for the winter, where they were kept well watered. As soon as the flower-buds pushed up, the plants were removed into a cool greenhouse, where they developed beautiful leaves and perfect, richly colored flowers. No plants have been more admired this spring than these pans of C. spectabile, C. pubescens and C. acaule, some of which bear seven flowers, while they have all lasted well. This method of treatment has been found perfectly satisfactory. In the open ground we have only moderate success with these beautiful plants. Some of our friends declare that these northern species of Cypripedium are prettier in flower than the highly-prized tropical species.

DISAS.—This genus is gradually growing in importance among popular garden Orchids. A few years ago we possessed only D. grandiflora, the Pride of Table Mountain; but we now have two other pretty-flowered and easily managed species in D. racemosa and D. tripetaloides, besides a hybrid named D. Veitchii, which was raised from D. grandiflora and D. racemosa, and which promises to be a first-rate garden plant. A fourth species of promise has lately been introduced from Madagascar, and flowered in England, D. incarnata, of Lindley, described by him in his *Genera and Species of Orchidaceous Plants* in 1838, but not introduced alive till now. It has fleshy, strap-shaped leaves nine inches to a foot long, and erect spikes of bright orange-red flowers, with yellow dorsal sepals. The plant thrives in a cool house, and the flowers last a long time. It may cross with the Cape species and yield something good in color.

ODONTOGLOSSUM PLATYCHEILUM is a new species, which recently flowered in the rich collection of Mr. R. J. Measures, Camberwell, who purchased it among an odd lot of Orchids, from Mr. Lee, of Leatherhead, some years ago. Its habitat, therefore, is at present unknown. Mr. John Weathers, Assistant Secretary to the Royal Horticultural Society, has prepared a sketch of the plant with a description for the *Gardeners' Chronicle*, from which I quote the following: "Pseudo-bulbs ovoid, slightly compressed, ancipitous, monophyllous; leaves oblong lanceolate, 8 inches long, one inch broad; scape short, erect, two (or more?) flowered; pedicels one to two inches long; flowers one and a half to two inches in diameter; sepals oblong lanceolate, white, with blotches of chestnut-brown at the base, keeled; petals similar, but not keeled; lip clawed, with a broadly cordate reniform blade, undulated, pale rose, with scattered blotches of crimson-purple; crest bilobed; column creamy white, clavate. The flowers suggest Brassia rather than Odontoglossum."

CATTLEYA VICTORIA REGINA.—Messrs. F. Sander & Co., the discoverers and introducers of this new Cattleya, exhibited a plant of it in flower at the last meeting of the Royal Horticultural Society, where it was awarded a first-class

certificate. As I have already pointed out, it resembles C. amethystoglossa in pseudo-bulb and foliage. The flowers are borne on erect spikes, strong pseudo-bulbs producing as many as twenty flowers on a spike; they are six inches in diameter, the sepals oblong lanceolate, the petals slightly broader and undulated, and the lips three-lobed, the central one spreading as in C. Leopoldii, the lateral ones folding over the column. The color is soft rosy crimson, with a bronzy metallic shade, especially on the young flowers, the front lobe of the lip being rich crimson. The flowers may be likened to those of Lælia elegans. A quantity of plants of this Cattleya were sold by auction in London to-day; they were in good condition, and realized from one to five guineas each for plants likely to grow.

Lælio-Cattleya Phœbe.—This is a hybrid between Cattleya Mossiæ (female) and Lælia cinnabarina, which has been raised and flowered by Mr. N. C. Cookson, who exhibited it last week at the meeting of the Royal Horticultural Society, and obtained for it a first-class certificate. It is intermediate in character between the two parents, the color of the flowers being yellow, with a crimson labellum. Messrs. Veitchs' L. Hippolyta was raised by them from the same species, but they made L. cinnabarina the seed-bearing parent.

Lælia Latona was exhibited at the same meeting by Messrs. J. Veitch & Sons, and also was awarded a certificate. It is a hybrid between L. cinnabarina (female) and L. purpurata, and resembles the latter in habit and foliage, but is smaller, as also are the flowers, their color being deep yellow with a dark crimson labellum.

Veitchs' Manual of Orchidaceous Plants.—Part viii. of this most valuable contribution to Orchidology has recently been published. It contains synopses of the following genera: Oncidium, Miltonia, Ada, Brassia, Gomeza, Ionopsis and Ornithocephalus. As in the previous numbers, the authors have limited themselves to species known to be in cultivation and possessed of some claims to the notice of horticulturists. Maps showing the geographical distribution of the species are given, and, in addition to careful descriptions of the species and interesting historical information, there are also numerous illustrations representing the flowers of some of the most attractive kinds. In dealing with the genus Oncidium the authors had a task of some difficulty. There are upward of three hundred described species, a large proportion of which have been in cultivation, but owing to the "miffiness" of many species they have never become established in gardens. The number of species of Oncidium described by Messrs. Veitch is 114, and of these, as they point out, a great many cannot be kept in health in English gardens more than two or three years. The genus is rich in beautiful-flowered species, but many of them have this great drawback of bad behavior under artificial treatment. Of course, there are some kinds, such, for instance, as O. flexuosum, O. Batemannianum, O. bracteatum, O. leucochilum and O. sphacelatum, which are as happy in our plant-houses as is Odontoglossum crispum. The Miltonias are treated upon exhaustively, as they deserve to be, and Brassia also obtains a fair share of notice. The other genera are dealt with in the same careful, discriminative manner which characterizes the whole of the work published up to the present. I am informed that the book will be completed in about two more parts.

Bulbous Irises.—A lecture by Professor M. Foster on these plants was one of the chief attractions at the last meeting of the Royal Horticultural Society. The professor finds time to devote to the cultivation of a rich collection of Irises of all kinds in his garden at Cambridge, and he is now the acknowledged first authority on garden Irises in England. But he admits that he has only lately come to understand the bulbous section of the genus represented by I. reticulata, I. xiphioides, I. alata, I. Sindjarensis, etc., which are generally notoriously bad to keep in the garden if not properly managed. He recommended growers to keep this section in a part of the garden by themselves, and to lift the bulbs in summer so as to get them thoroughly ripened by drought, planting them again in late autumn in rich soil. The plants, in fact, should be treated as the Dutch treat their Tulips, Hyacinths, etc., and then there is little difficulty in keeping them and getting them to flower freely. I have before stated that we have proved at Kew that this treatment is suitable for I. Susiana and its allies.

The Dandelion as a Garden-plant.—In a piece of semi-wild ground attached to Kew there are now some thousands of plants of the common Dandelion in full bloom. They are broad tufts of rich green leaves with from a dozen to twenty flower-heads springing from each tuft, each head two inches across and colored a rich golden-orange. I know nothing that flowers so early in the year that will compare with these Dandelions for richness of color, floriferousness and elegance. I therefore venture to recommend the common ubiquitous Dandelion as a first-rate plant for spring effect in the garden. I can imagine a few beds of well-cultivated plants nicely placed on the lawn, and glistening in the May sunshine like burnished gold, surpassing any yellow flowers possible out-of-doors in May. The Dandelion is capable of being turned to excellent account in the flower-garden. We have beds of Tulips, Hyacinths, Daffodils, etc., in April and May, but nothing like to, nor even so good as, these big-flowered golden-yellow Dandelions. The French know the value of this plant as a vegetable, and have grown it largely for the last twenty years. According to Monsieur Vilmorin, it was formerly gathered from the fields and meadows where it grows wild, but as it became an important article of commerce in Paris its systematic cultivation and improvement naturally followed, with the result that improved varieties have been raised and their cultivation is now largely practiced. The whole of the plant is used for salad, the leaves being, as a rule, blanched by covering them with pots, as in the treatment of Sea-kale. We do not know the Dandelion as a garden-vegetable in England, but it deserves a place as a "bedding" plant, on account of its beautiful flowers. If, instead of being common with us, it had been obtained from Japan or China or New Zealand, we should have recognized its beauty and fitness for the garden by using it extensively for spring effect. No doubt, it might be improved, or, at any rate, variety of form, size and shade of the flowers could be obtained by cultivation and selection, just as the French have obtained considerable variety in the leaves.

London. *W. Watson.*

Cultural Department.

Bulbous Irises.

PROFESSOR MICHAEL FOSTER, of Cambridge University, England, the highest authority on Irises, recently delivered a lecture on the bulbous section of the Genus, which will be published in full in the Proceedings of the Royal Horticultural Society. The lecture, from which we take the extracts which follow, was illustrated by living specimens of many of the species, and also by drawings borrowed from the Royal Gardens at Kew.

Iris Sisyrinchium is one of the most widespread, and is related to the bulbous Irises of South Africa. It is characterized by the bulb being wrapped in a kind of network; it has two narrow leaves, from between which the flower-spike ascends. The flowers open about midday, and close about four o'clock, three or four slightly fragrant flowers being borne upon each spike. It is not a great acquisition to the gardener, and is rather difficult to grow in England. It requires a very hot summer and severe baking, and the bulbs should be taken up and well dried each season.

I. reticulata has a bulb very similar to the foregoing, but the leaves are linear and have four sides. The one generally regarded as the type has violet flowers, but this form is very rare, and is never found among imported bulbs of this species. I. reticulata Krelagei is a purple variety. The segments are

smaller and broader, and it has not the odor possessed by the other. As this is very much more common, it might be regarded as the typical form, more especially because, if crosses are obtained between the generally accepted type and Krelagei, the seedlings will chiefly follow the characteristics of the latter. I. reticulata purpurea is more handsome than the variety Krelagei, and there is another small variety of this group called Cyanea. I. Sophroniensis, an early flowering species, I. Danfordiæ, with which I. Bornmülleri is synonymous, are also allied to I. reticulata, as is I. Vartani, an Iris growing in the neighborhood of Nazareth, and flowering in October and November. I. Histrio, generally accepted as a different species, is regarded as merely a variety of I. reticulata. The flowers are not of a uniform color, but are blotched with lilac on a paler ground. A variety called Histrioides, although differing in several respects from I. Histrio, is certainly of the same species as that variety, while there can be no doubt about its being a member of the reticulata group. An Iris very like I. reticulata, with similar bulb and the leaves somewhat the same, is I. Bakeriana. The flowers of all these are very beautiful. The plants require plenty of sun and a good loamy soil, which should be rather stiff. They are liable to the attacks of a fungus, that will cause the bulbs gradually to decay if they are left in the ground. If lifted each year, the fungus is greatly checked.

I. Kolpakowskyana is closely allied to I. reticulata, has bulbs with netted coats, but the leaves are not similar; it has a very beautiful flower, and is difficult to cultivate. I. Winkleri, with blue flowers, is very similar to the above; the leaves are more or less linear, and the bulb is covered with membranes. It has a somewhat limited distribution in Europe.

I. xiphioides has blue, purple and white flowers in different varieties, but in none of them can any yellow be seen. It is sometimes called the Pyrenean Iris. I. xiphioides (the English Iris) requires a more damp situation than the Spanish form. Both are thoroughly hardy, and can be left to themselves to a great extent. The name (English Iris) originated through its being first brought to Bristol and afterward distributed to the different parts of Europe from the west of England. I. filifolia is an exceptionally handsome flower—a rich strong purple limb and orange signal. It is slightly allied to the Spanish Iris. It requires a thorough baking, and would be benefited by a little pinching in summer through want of rich soil. I. Tingitana is a large one, and grows in the neighborhood of Tangiers. It has a resemblance to the English Iris, but is exceedingly difficult to grow. It blooms early, but it requires a very warm spring and must be dried up in summer.

The Juno group differs from the rest in that the ripe bulbs possess a number of fleshy roots and broad leaves. These roots disappear annually, but if the bulb does not produce a flower, they sometimes remain, because the nutriment contained therein is not drawn upon. I. alata, or I. scorpioides, is a form of this group having broad leaves. The outer segments of the flower have an ear-like projection in each side, and it has a well-formed crest. The bulb is covered with several coats. It may be grown in the open, south of London, perhaps, but it requires the shelter of a greenhouse in the Midland counties. It has large flowers with various markings, exceedingly fine and fragrant. I. Persica is a very beautiful little plant, with flowers possessing very characteristic markings. There are many varieties of this lately introduced. They will stand frost, but require roasting in summer. They should be lifted each year, and thoroughly dried.

I. Caucasica, with its greenish yellow flowers, is not a great acquisition in the garden, but there are several varieties that excel the type. One of these deserves the specific name of Orchioides, a variety that differs in many respects from the type. I. Rosenbachiana, also belonging to the Juno group, is characterized by the fall of the outer segments, its beautiful rich markings at the bottom of the fall, and possessing an exquisite signal. It blooms in February or March, before sending forth any leaves, and sometimes among the snow. It looks like a summer flower, its surroundings not being suitable to its rich color and refinement. In the different plants the color is exceedingly variable, but the form is fairly constant. Another, belonging to the same group, is I. Fosteriana, with foliage not so broad, and having less fleshy roots. It comes from Afghanistan. A handsome contrast is presented between the golden-yellow upright part of the flower and the purple fall; it does not take kindly to the English climate. I. Sindjarensis is fairly hardy, and grows as well in our gardens as any of this group; a very beautiful and fragrant species.

Some of the bulbous Irises are not strong in their struggles for life, and ought to be grown by themselves and treated with great care, for if left to fight their way among other plants, the result will be disastrous to them.

Fig. 50.—White Oak (Quercus alba) at Shandy Hall, Maryland.—See page 254.

Rock-garden Notes.

ONE of the chief features of the rock-garden at this time is the Iceland Poppy (Papaver nudicaule). The plants of last year have stood the winter extremely well, and are covered with their beautiful yellow flowers. An abundant supply of young plants are coming up from self-sown seed. These will bloom during the summer when the old plants have exhausted themselves, and there will thus be flowers throughout the entire season. P. nudicaule album is a beautiful free-flowering variety with satiny white flowers. P. nudicaule miniatum is distinct, the flowers being intense orange-scarlet. The flowers of these Poppies are about two and a half inches across, and are produced on peduncles from twelve to fifteen inches high. They are fugacious, which renders them worthless for cutting purposes, except those of P. nudicaule, which last for several days after they are cut.

From a botanical point of view, P. nudicaule and P. alpinum are one species. They are, however, distinct enough for gardening purposes to retain their specific names, and can easily be distinguished from one another. P. nudicaule has a larger and more robust growth, and the foliage is less divided. The Iceland Poppy should be planted in a fully exposed position in the rock-garden in well-drained, moderately rich and light soil. Seeds are freely produced, and young plants are easily obtained from seed. The plant is a native of the boreal regions of the Old World, and was introduced into cultivation in 1759.

Orobus vernus is one of the hardiest and certainly one of the most charming spring-flowering, herbaceous perennials. It blooms annually with great profusion, even when flowers of this class are scarce. It is a native of Switzerland and Germany, and was introduced into cultivation two hundred and fifty years ago. It rarely ever grows higher than a foot. The flowers are produced on nodding, axillary peduncles. At first they are purple and blue, with red veins, and the keel is tinted with green. As they become older, they merge into blue, so that a plant shows flowers in many different shades. The leaves are composed of two or three ovate-lanceolate, acuminate, shining leaflets. The stem is simple and flexuose. This plant does best in deep, rich, moist soil, and thrives in a shady or an exposed position. It seeds freely and may be propagated from seed or by the division of strong roots.

Omphalodes verna, or, as it is sometimes called, the Creeping Forget-me-not, is an old favorite in gardens, and was introduced from the south of Europe. It is one of the plants to be relied upon for planting in shady positions, and when established it soon spreads. A large clump is growing luxuriously under Pine-trees here, and it produces an abundance of beautiful blue flowers for several weeks. It belongs to the Borage family, and grows from six or eight inches high. The single flower is about half an inch across, and is borne on a few-flowered raceme, on erect stems, which emit stolons at their base. The radical leaves are ovate-cordate and the stem leaves are ovate-lanceolate. O. verna is increased by rooted runners in the spring, planted in a shady place, in good, sandy soil.

For the last week Corydalis nobilis has been very attractive in the rock-garden, and if the weather is favorable the flowers will last two weeks longer. It is a Siberian plant, and was brought into cultivation in the year 1783. Its habit and form are good, and it grows about one foot high. The flowers are pale yellow, tipped with green, and the spur is long and incurved at the point. The leaves are bipinnate, the segments wedge-shaped and cut at the top. The foliage is handsome, and is further beautified by the graceful habit of the whole compound leaf. It is well suited for the rock-garden, and should be planted in a rather sunny position in deep, light rich soil. It is propagated by division of the roots.

Anemone sylvestris, sometimes called the Snowdrop Anemone, is flowering profusely on a large mound in a rather shady position. This plant grows about one foot high, and well-grown specimens are very attractive. Although this plant is a very old inhabitant of English gardens, it is seldom seen in good condition in America. The flowers are solitary, pure white, about one inch and a half across when fully open, and their drooping habit adds much to their beauty. The leaves are three parted; the lower lobes are deeply divided and are pubescent beneath. It is a native of central Europe, and is perfectly hardy in this locality. It flowers better here on an elevated position in the rock-garden than it does in our borders. It is easily propagated from runners, which grow up around the old plants, or from seed.

Dicentra spectabilis is one of the best herbaceous perennials in cultivation. It was brought to England from China in 1846, and was known then as Dielytra spectabilis. It thrives well either in the rock-garden or in the herbaceous border, but delights in a deep sandy soil. It is largely used for forcing in the spring, and for this purpose a large number of the plants are grown in Holland and Germany, and sent to this country in the fall. It is propagated by division of the roots in the fall.

Cambridge, Mass. *R. Cameron.*

Roses.

IN order to secure a regular supply of Roses for cutting during summer and fall, preparation is necessary early in the season. For summer flowers, out-of-doors, Marie Van Houtte and Papa Gontier are excellent sorts, and produce a succession of handsome buds throughout the season. The miniature flowers of some of the Polyanthas also are useful, and those of Clothilde Soupert are notably so, this charming variety being, doubtless, one of the best of its class.

Where one has facilities for indoor planting, summer showers can do no damage, although it must be admitted that Roses under glass will require much more attention than others. For greenhouse-planting Marie Guillot is the best white, La France a satisfactory pink, and Pierre Guillot a good red, while Duchesse de Brabaut and Souvenir d'un Ami will furnish a good supply of light pink flowers, though of somewhat inferior quality to those first mentioned.

The planting of the stock should not be delayed now, and as they will only require a depth of about three inches of soil on the bench it is not a laborious operation to prepare for. A thin shade on the glass will be of benefit to the young Roses and will prevent them from drying out too rapidly during the hot weather. A thin mulching of good manure will be beneficial as soon as the plants begin to grow, and abundant ventilation will be needed.

The month of June is the time to note the most satisfactory varieties for permanent planting outdoors and to prepare for increasing the collection for the following season. Dealers' lists are not always reliable in descriptions of new varieties; at least personal observation is more satisfactory. Many of the old varieties are fully equal and often superior to the new ones, although the inexperienced buyer would hardly suspect this when reading descriptions of the novelties.

Very little budding or grafting of Roses is now done in this country in comparison with the vast numbers of these plants produced here annually, though many thousands of such plants are sent from Europe each season. These are usually distributed by means of auction-sales in the large cities. The budded plants, however, seldom prove as satisfactory as strong and healthy plants on their own roots, and, besides, being more liable to be winter-killed, do not grow with the same vigor. Many of these imported plants are used by the florists as pot-plants in flower, but are not as strong as the plants grown in the south Atlantic states, and which are own-root plants. One of the most interesting questions among the growers of Roses for market is how to get rid of eel-worms. These almost invisible pests have been shown by Professor Halsted to be the cause of the so-called club-root among Roses, and, as the measure of prevention recommended is to roast all the soil for the Roses before planting, it becomes a very serious matter to a large grower.

Other remedies suggested are various liquids to be applied to the soil after planting. These appear of doubtful value, as the worms seem able to stand quite as much as the plants.

Holmesburg, Pa. *W. H. Taplin.*

The Cultivation of Blackberries and Raspberries.

IT is not an agreeable sight, after a winter of heavy snows, to find our small-fruit gardens giving no promise of a crop for the year. Really this is unnecessary. My Raspberry-canes have come through in almost perfect order; the loss from breaking is not one per cent. This is accomplished by tying the canes in bunches of three or four above or below a wire which extends along the row. The variety I mainly grow is Cuthbert, which does well in solid rows. These rows, before I learned to tie them, were often flattened to the ground under drifts. In the spring much labor was needed to put them in order. I adopted the plan of cutting low; but while the breakage was less, the crop was also diminished. I now grow canes five or six feet high, and tie them with stout, coarse hop-twine. Our only cultivation is in the spring, when the ground is mellowed as soon as possible, and kept mellowed until the cultivator will break the growing shoots too badly. After that nothing is done except to manure the ground in the fall. The object of running the cultivator closely in spring is not so much to de-

stroy weeds as to cut up the sprouting bushes and throw all the strength of the new growth into canes in the rows. If left alone the ground between rows would be absolutely filled with young shoots. In spite of the cultivator, I am obliged in the fall to dig out superfluous canes. These are heeled in till spring, and then sold. Every grower of small fruits should have his surplus bushes and vines in shape to be disposed of at some profit. Until last year I grew my Raspberries even higher than at present, and the advantage was in shading the ground, as well as making it more convenient to pick; but I have changed my plan somewhat because the tendency was to shade too heavily the young shoots and weaken canes. The walls of berries presented on solid rows of canes tied as described is a picture.

In growing Blackberries we are compelled to take into consideration the style of growth; for some of our standard varieties send up invariably erect canes with few side shoots, while others are spreading and sprawling. Of the former kind are Snyder and Wachusetts; of the latter, Minnewaska; and between the two Erie, Agawam and Taylor. There is a decided advantage in the upright growers if you insist on cultivating between the rows. But this, after the berries have taken full possession of the soil, I abandon. They will smother weeds and grass, and no hoeing is necessary. After the second year I do nothing but cut out dead canes and shorten the tops, either in the fall or spring. The main point with Blackberries is the soil. This, if possible, should be cool, loamy and rich; but I never allow any application of barn manure. Fertilize with soil, rotted chip soil, or whatever will mulch and cool the soil. Our chief danger with Blackberries is a dry spell when the berries are approaching maturity. Of the berries now in cultivation, my choice for quality is Taylor and Agawam. Erie has not killed back this winter as it sometimes does; but it is not with me a good cropper of fine berries. Snyder is always reliable, but of moderate quality. Wilson, Jr., I see is still spoken of by some as hardy, but here it is hopelessly a failure. It kills down always, and even in the winters when peach-buds escape. Kittatinny is a noble fruit, and I get a crop from a small field by bending down the canes. Wachusetts Thornless does not differ largely from Snyder, and is entirely hardy. Few berries are badly affected by dry weather. On the whole, the key to success is cool, moist soil, not wet. If planted on high land, either mulching must be resorted to or frequent use of the cultivator. The Lucretia Dewberry is tender and must be laid down for winter and covered with leaves. In the spring I lift mine and tie to trellises. It will not pay to plant large fields. The demand for the Dewberry is, however, unlimited, but few persons are willing to incur the labor of cultivating it. The fruit is enormously large, very rich, and two weeks earlier than the high Blackberries. It will not ship to a distant market.

Clinton, N. Y. *E. P. Powell.*

Insecticides and Fungicides in the Orchard.

PERHAPS I am too conservative for this progressive age, but I cannot help thinking that we are doing more spraying in our orchards now than we shall do ten years hence. There has rarely been any great scarcity of tree fruits in this country that spraying would obviate. It certainly could not have given the country a generally good crop of apples in 1890, and when there is a good blooming and the fruit sets freely, we have enough, and sometimes a good deal more than enough, as we had last year. In the off-years it will probably pay to spray our apple orchards, but in a plentiful one it would be better if we knew a good way to greatly reduce the fruitage of our trees, by a simpler method than thinning it by hand. I had all the fruit my trees would carry in 1890, being one of the few lucky ones, and I am still thankful to the Codlin-moth for the help she gave me in causing a large proportion of it to drop prematurely. I have never yet felt sure that this moth is, on the whole, a serious enemy to the careful fruit-grower. I am inclined to think that a light crop, occasionally, is a benefit to the trees as well as the market.

So much for the Codlin-moth. Spraying has no effect upon the Railroad-worm, Trypeta pomonella. As for the leaf and fruit fungus that causes spotting, I think the quicker we uproot every variety subject thereto, the better for us all. There are enough good sorts that do not spot, and some careful work in crossing the resisting sorts upon the best of the valuable spotting sorts, will give us practically many non-spotting duplicates. Such a duplicate, with me at least, is the Shiawassie, in place of the Fameuse. Scarcely one of the Russian Apples is subject to this disfigurement, and by free crossing with resistant varieties we can keep clear of spot altogether. What, then, is the use of planting out these spotting varieties, when we already have so many kinds that do not spot? Spotting and cracking of our varieties of apple and pear are simply indications of a weak constitution or an imperfect adaptation to our soil or climate. We have been compelled, on this eastern slope of America, to plant the tree fruits of the western slope of Europe. It is no way surprising that many of them prove illy adapted to our climatic conditions. The severe winters and torrid summers of eastern America would be far better suited to the fruits of like latitudes from eastern Asia. Perhaps crosses between the two would be equally good; no one knows that they would not be even better. It remains a most astonishing thing to me, that the efforts to introduce these eastern European and Asiatic tree-fruits to eastern America are looked upon so indifferently, and even so scornfully, by most of our expert fruit growers, and by the great nursery firms. We have, on the western slope of our own continent, abundant proof that many of the fruits of western Europe are much more at home there than in our eastern states. The Vines of western Europe have never succeeded in eastern America. The same is true of Apricots from that region, but varieties of all these fruits are growing successfully in eastern Asia, that, by all analogy, ought to suit us much better and give us more satisfactory results than we now have. True, in our middle states, the Pears, Peaches, Plums, Cherries and Apples of our transatlantic neighbors—or a sufficient number of them or of their American seedlings—are doing tolerably well, though rarely so well as in their old home. But, even where these fruits succeed, the trees are shorter-lived than the same varieties are in Europe, showing that they are not thoroughly at home with us. In fact, most of our popular and profitable varieties of Apples, Plums and Cherries, and even of our Pears, are seedlings grown in this country, and presumably a step or more on the road toward gradual acclimation to our conditions. Why adhere to a weak type when a stronger is at hand? It may be said that the Asiatic varieties are not equal to the European. No one knows this to be true. It is as yet but a hasty and bold assumption of conservative minds. But, even if true, when we have secured the vigor we may soon add to it the desired quality, and I feel very sure that when we get stronger races of tree-fruits we shall not have to wait long for quality, while we shall have constitutions vastly in advance of the old stock, and consequently greater resistance to both insects and disease.

Newport, Vt. *T. H. Hoskins.*

Some Vegetable Notes.

THE last week in May or first of June is a good time in this latitude to sow Tomato-seed for a late crop. Even if the early plants, by reason of an unusually favorable season, continue to produce fruit, it is, late in the season, very inferior to that produced as the first crop on a fresh lot of plants. For canning purposes this late crop is the best of the season.

The planting of succession crops of Snap Beans should be kept up, as fast as the plants of the last sowing fairly develop leaves, until August, and in this latitude until the middle of September.

Salsify-seed sown the last of the month or the first of June will generally be better than that sown early in spring. Here, July 1st is time enough, for if sown early it will run to seed at midsummer, or at least get a check that will injure the quality of the roots.

Succession crops of Sugar Corn should be planted up to July. In this climate it is almost impossible to have early sweet corn, on account of the ravages of the Boll-worm, so we have to be content with Adam's Early in June and early July. With late Sugar Corn it is different, and we have fine ears of Stowell's Evergreen and Mammoth. Late in May is a good time to plant it, with successive plantings every two weeks until the latter part of July.

Musk-melons may still be planted. For family use we prefer the Emerald Gem, but the city-market buyers, who buy by eye mainly, will take the coarse Hackensack and even worse ones in preference.

Plants of Fottler's Brunswick Cabbage, set now, will make a fine succession crop to the Wakefield and Early Summer.

It is not yet too late to plant Okra. Aside from its value as an ingredient in soup, this is a delicious vegetable boiled and served like asparagus. It is not well to plant it too early, as it is quite sensitive to the weather, and will do better, starting after the ground has become warm.

In the south, the last of May is the best time to sow seed for

the main crop of Celery. The chief difficulty is to get the plants up at this season, and when only a few are needed, it is much better to get them grown in the north, where many plant-growers make growing of Celery-plants for southern trade a specialty. The small plants can be got in June and set a few inches apart in a cold frame, and protected by a lath screen instead of a sash.

About the first of June is a good time to put in a crop of Carrots for fall and winter use. The intermediate forms are best; the large, coarse sorts are only fit for cattle feeding.

Sugar Beets when about half-grown are good for table-use. The color looks odd, but the quality is all right so long as the roots are not overgrown. The seed may be sown any time up to the middle of June.

Raleigh, N. C. *W. F. Massey.*

The Forest.

Forest Experiment Station at Santa Monica.

IN no other state of the Union are questions pertaining to forestry of more profound importance than in California. The immense bodies of timbered land in the north, the comparative treelessness of the south, and the supreme need of preserving every drop of water in all parts of the state for irrigation, give an unusual interest to every effort directed either toward the preservation of the forests we already have or to the plantation of new ones.

The work of the State Board of Forestry, though hampered by an insufficient appropriation of funds, and somewhat, also, by the usual considerations of practical politics, represents, nevertheless, a very creditable beginning of a movement which has already shown the wisdom and foresight of those who inaugurated it, and is sure to have a wide influence on the future development of the state.

One of the best-directed and most promising undertakings of the Board has been the establishment of two experiment stations, one at Chico, in the north, upon land donated by ex-Governor Bidwell; the other in the south, at Santa Monica, upon land given by Senator Jones, of Nevada and his partner, who own together some 40,000 acres of beautiful and fertile land between Los Angeles and the sea. This station comprises twelve acres, situated within half a mile of the Pacific, and includes a narrow valley with its sturdy little stream, and two benches of a few acres each, which form steps to the level table-land above, and give a desirable variety of soil and exposure. The work here is, of course, turned more particularly to the growing of such trees as are expected to be specially adapted to the southern part of the state. A large proportion of the trees are of Australian origin, and interest is centred chiefly in the two wonderful genera, Eucalyptus and Acacia, the Gums and Wattles, as they are known in Australia.

It was recently predicted by an eminent German forester, Dr. H. Mayr (Garden and Forest, vol. iii., p. 445), that in fifty years it would be inconceivable that southern California was once treeless. "Amid magnificent forests," said he, "of Australian Eucalyptus and Acacias, the visitor will be inclined to doubt that he is really in America."

Many thousand young seedlings are grown annually for gratuitous distribution, and the grounds of the station are being filled with specimen trees and with small plantations set out in various ways to test the practical value of the different methods of planting and culture. Of Gums there are some forty species represented by trees from two to three years old, and from five to thirty feet in height, which are now at the most interesting stage of growth. Eucalypts, as a rule, have a great diversity of appearance during the first two or three years of their life. The leaves and habit change as the trees grow older, and assume, to a large extent, the same general character of long, pendant, lanceolate, and more or less glaucous leaves and drooping branches, so that in old trees it is often very difficult to determine the species except by the flowers and seed-vessels. Many of the trees at Santa Monica now have both their youthful and mature forms of foliage, and many are beginning to flower—a precocity certainly remarkable in trees which grow to such an immense size.

The foremost of the Eucalypti as regards the number grown in California is the E. globulus. The cultivation of this species has passed the experimental stage, since it is grown by nurserymen by millions annually, and is planted throughout the state, sometimes in groves quite large enough to be called forests. The extremely rapid growth of this tree, and the high price of fuel, make it a profitable investment for planting. A tree of this species, recently cut at Santa Barbara, three years and nine months old from the seed, measured forty-three feet ten inches in height and eight and three-quarter inches in diameter at the butt. This tree was not an isolated specimen, but was in the midst of a grove planted eight feet apart each way.

The Red Gum (E. rostrata) is also established in California. Its growth is less rapid than that of the Blue Gum (E. globulus), but its lumber is more valuable. The wood is stronger, more easily worked, and more durable for such uses as posts, telegraph-poles, railroad-ties, and especially for piles, since it is not attacked by the Teredo.

Aside from these two species, but few of the many excellent Eucalypts were generally known here until brought into popular notice by the efforts of the State Board of Forestry. There have now been distributed through the state from Santa Monica a large number of new species worthy of attention for the different qualities they possess. Specimens of these at the station are already large enough to show indications of their value, and to give some useful hints to those desiring to plant.

Among the more noteworthy is the Sugar Gum (E. corynocalyx), a tree of rapid growth and handsome appearance. It is more umbrageous than most Gums, and produces a hard, strong wood, remarkable for its durability under ground. The chief merit of this tree, however, is its adaptability to the most arid localities. It has been recommended by Baron von Müller for planting in the Algerian regions of the Sahara, and has succeeded well in southern California on dry and rocky foot-hills impossible to cultivate. A specimen of this species grew during its second year from planting from eight and a half to nineteen feet in height.

E. viminalis, the Manna Gum, is one of the hardiest species, and has been extensively distributed to the cooler districts of the state. It will stand for a short time without injury, according to Monsieur Naudin, a temperature as low as fourteen degrees, Fahrenheit. Though a shapely tree for avenue-planting, and almost as rapid in growth as E. globulus, its wood is softer and less valuable than that of many other species. The custom is almost universal among the nurserymen here to sell this tree as E. rostrata.

E. marginata, the Yarrah, which is famous for the resistance of its wood to attacks of the Teredo when used for piling, and which forms such extensive and valuable forests in west Australia, has proved of rather slow growth at Santa Monica. Its increase in height does not exceed two or three feet in a year.

The station has a number of fine specimens of E. amygdalina and E. diversicolor, trees which, in their native soil, according to Von Müller, sometimes grow to a height of over four hundred feet, overtopping, perhaps, our giant Sequoias.

The handsomest of all the species at Santa Monica, at least in their present stage of growth, is E. polyanthema, or Gray Box. Its upright form and dense foliage at once distinguish it, but its chief beauty is in the delicate pearly gray color of the leaves, which, in the young growth, is almost lavender. On young trees the leaves are nearly round, and are gracefully curved. While not growing so rapidly as some others of the genus, the Gray Box produces very valuable timber, and has shown a capacity to resist extreme drought.

Next in order of interest to the experiments with the Gums are those which have been made with the Wattles, or Acacias. The Black Wattle (Acacia decurrens) is a specially noteworthy tree, as remarkable for its wonderful rapidity of growth as for its extraordinary beauty. But its chief claim to attention is in the value of the bark for tanning leather. The Golden Wattle (A. pycnantha), though not growing quite as fast, produces a bark still richer in tanning qualities. Thoroughly dried specimens have frequently yielded to a chemical test over thirty-six per cent. of tannic acid. These trees promise to give to California a plentiful supply of tanning material. The bark of the Chestnut Oak already commands $16.00 or $17.00 per cord in San Francisco, and the supply has yearly to be obtained from less accessible places. The tanners of the Coast appreciate the importance of the subject, and have shown considerable interest in the experiments of the board looking toward the more extensive introduction of the Wattles. In Australia and New Zealand the cultivation of these trees is rapidly spreading, some plantations containing as many as 3,000 acres, and apparently giving satisfactory returns. The trees are ready to strip when from five to seven years old, and an acre containing 1,000 trees is expected to yield over five tons of bark, valued at $35.00 or $40.00 per ton. The wood of the Wattles is used in Australia for spokes, staves, etc., and it makes excellent fuel.

Both these trees are very floriferous, and when in flower are masses of yellow bloom, the fragrant little golden balls hanging in innumerable racemes from every part of the trees. The Black Wattle seems to possess about the same degree of hardiness as Eucalyptus globulus. The Golden Wattle is more tender, but will do well in localities of extreme aridity, and is contented with a very poor soil. These trees being somewhat difficult to transplant, the experiment has been tried of planting the seed in cuttings of bamboo or cane four or five inches long, set up on end and filled with earth. One or two seeds are planted in each tube. When the trees are six or eight inches high they are easily transferred to the field, tube and all, without disturbing the roots, and the cuttings of bamboo are left to decay.

Another noteworthy tree is the Blackwood (A. melanoxylon). Its symmetrical shape, dense foliage and abundance of flowers make it a very desirable tree for avenue-planting, while the wood, much resembling that of the Black Walnut, is highly esteemed in Australia for cabinet-making. The Blackwood, like the Golden Wattle, belongs to the wonderful phyllodineous Acacias, no less interesting morphologically than they are curious to the most careless observer. The leaves on the young tree for the first few months are soft, feathery and bipinnate. The leaf-stalks soon begin to broaden and lengthen out, until at last they become the somewhat stiff, leathery phyllodia which form the foliage of the mature tree, though sometimes retaining upon their tips, for two or three years, remnants of the bipinnate leaves of their youth.

These are a few of the more important of the many interesting trees which are being brought to the attention of California planters by the experiments at Santa Monica. The station is in charge of Mr. Wm. S. Lyon, an accomplished botanist and an enthusiastic tester of trees, whose pen has, moreover, done much to bring about a proper public sentiment in regard to all questions relating to the forestry-interests of the state.

Montecito, Cal. *Frank M. Gallaher.*

Recent Publications.

Traité des Arbres et Arbrisseaux, Forestiers, Industriels et d'Ornement, Cultivés ou Exploités en Europe et plus particulièrement en France, donnant la Description et l'Utilisation d'environ 1,800 *espèces et* 1,000 *variétés.* P. Mouillefert. Paris, Paul Klincksieck. 1891.

The object of this work, which is appearing in parts and which we should judge was about one-quarter finished, is to furnish a brief account of the trees and shrubs which grow spontaneously or are cultivated in Europe and principally in the territory of France. The author is a well-known and learned dendrologist and Professor of Sylviculture in the National School of Agriculture of Grinon, where a well-arranged arboretum is maintained under his direction.

The works of comprehensive scope devoted to the elucidation of cultivated ligneous plants which have previously appeared in the present century is that of Loiseleur, a French botanist, who published in its early years a classical treatise on trees and shrubs usually known as the *Nouveau Duhamel*, it being regarded as an enlargement and continuation of the *Traité* of Duhamel, the great French dendrologist of the eighteenth century (Loiseleur's work is in seven folio volumes, sumptuously illustrated with colored plates, and has become so rare and expensive that many cultivators of trees are prevented from consulting it); the exhaustive and indispensable *Arboretum et Fruticetum Britanicum* of Loudon, published fifty years ago and before the introduction into gardens of many of the plants now cultivated, especially those of western North and South America, Mexico, Japan, Australia and New Zealand; and the *Dendrologie* of the German, C. Koch, published from 1869 to 1872, and exclusively devoted to an account of the woody plants cultivated in northern and central Europe. The time then had come in France for a comprehensive work on the subject which should include, besides the familiar trees and shrubs of the gardens of Paris and of the north of France, the innumerable forms of woody vegetation which have been brought from all the dry temperate and subtropical regions of the world into the gardens of Provence.

The plan of Professor Mouillefert's work, as explained by the author, who has devoted many years to preparing himself for his task, embraces a brief history of all the principal trees, native or exotic, found in Europe growing spontaneously in forests, in dendrological collections like those found in the botanic gardens of all European cities, and in public gardens and parks; and also of the shrubs most commonly cultivated in orangeries and greenhouses—that is to say, all woody plants cultivated in forests and gardens. Of such plants the author estimates the number of species as from eighteen hundred to nineteen hundred with eight hundred or nine hundred varieties.

The systematic catalogue is prefaced by an introduction, containing a brief treatise on those departments of botany which must be understood in order that trees may be studied intelligently, to which is added a list of technical expressions used in the work and eleven plates illustrating the form of cells, the structure of tissues and of wood, the various forms of leaves, and the different sorts of inflorescences and of fruits. Coming to the catalogue itself we find that the history of each plant is composed of four principal parts. The first is devoted to the origin and the geographical range of the species; in the second the principal botanical characters which distinguish the species are given in simple language, the author wisely confining his descriptive matter to the essential or differential characters which may be relied on to distinguish a plant of the particular species from the best-known species or type of the genus, in this way avoiding needless repetitions and bringing out the salient characters of each plant. The third part treats of the soil and exposure best suited to develop the plant in question, with notes on methods of propagating it; and in the fourth part is set forth the nature of the products—that is, the wood, the fruit, the bark, etc.—with notes on its value from the ornamental or from a sylvicultural point of view. An atlas or thirty-two colored plates accompanies the work, illustrating representatives of the principal groups, each plate displaying as far as possible a branch in flower and in fruit, a flower with its principal organs, an entire fruit and a fruit in section, and the seed. Besides these colored plates, the work is further enriched by one hundred and eighty-nine plates, reproduced from photographs, made by the author, of cultivated trees in different parts of France. These usually represent trees without leaves that their appearance in winter may be made familiar.

On the whole, the treatment of the subject so far as the result of Professor Mouillefert's observations have been published is good, although, as is generally the case with botanists working with plants represented by cultivated individuals exclusively, the number of species in some genera is unnecessarily enlarged, and too much attention is often paid to ephemeral varieties of little morphological or horticultural value; and "book species," which would disappear in the course of a critical study of all the members of the genus in their wild state, are too frequently admitted, as is perhaps inevitable in a work of this character. But, after all, Professor Mouillefert does not pretend to present his readers with an exhaustive study of the wild types of all the trees and shrubs cultivated in Europe, and confines himself to a treatise on the cultivated plants themselves as they appear in French gardens. This he has so far succeeded in doing in an acceptable and most useful manner, and we can recommend his work to all persons familiar with French who occupy themselves for profit or for pleasure with the cultivation of woody plants.

Notes.

The Société Nationale d'Agriculture de France, at a recent meeting held in Paris, awarded its gold medal, stamped with the portrait of Olivier de Serres, to Professor Sargent's *Silva of North America*, now being published by Houghton, Mifflin & Co.

According to the *Zeitung*, of Cologne, the owner of a Cherry-tree, which stood upon a piece of ground required for the enlargement of the railroad station at the village of Niederlahnstein, was recently paid $600 for the tree in addition to the value of the land, and accepted this sum only after a long contention, declaring that the tree was worth at least $900.

In the mid-May issue of the *Revue Horticole* a portrait appears of Deutzia parviflora, the most beautiful species, perhaps, of the genus, one of the best hardy shrubs in cultivation, and a native of Manchuria. It has recently reached the gardens of western Europe as it now appears through the Arnold Arboretum, which received it many years ago from the Botanic Garden at St. Petersburg.

A correspondent sends us from Boston flowers of the double form of the beautiful Cuckoo-flower (Cardamine pratensis), which has recently been found near Woburn, in Massachusetts, where it has become naturalized and covers a considerable area. This plant, which is rare in the eastern states, is also a native of Europe, where the double-flowered form is said to be not uncommon.

The growers of Tuberoses in eastern North Carolina, who have been for some years supplying the market with these plants, are much discouraged by the decreased demand and low prices for their bulbs. It has been suggested that their soil and climate are remarkably adapted to the growth of Roman Hyacinth, Narcissus and Lily bulbs. The whole tribe of Narcissus, now imported in such quantities, can be grown there in great perfection.

Mr. H. J. Webber, the author of a *Catalogue of the Flora of Nebraska*, which was published in 1890, has since found cause to make some corrections in his list and to enlarge it considerably, and has therefore written an appendix, which has just been reprinted from the *Transactions of the Academy of Sciences of St. Louis*. It mentions 432 species, not hitherto reported, from Nebraska, making the whole flora of the state, as thus far known, to include 2,322 species and varieties.

Mr. Samuel B. Duryea, of Brooklyn, well known for his intelligent interest in the park system of that city, has recently presented to it a tract of eight acres, extending for more than five hundred feet along the water-front and adjacent to the proposed shore-road to Fort Hamilton, on condition that this driveway, which, when completed, should be one of the finest ocean-drives in the world, is at once laid out and constructed as provided for in a recent act of the Assembly.

In June, 1890, the alpine experimental garden on the Brocken in the Hartz Mountains, had been planted with two hundred species of alpine and Arctic plants and Siberian and North American conifers. Late in the autumn of the same year it was found that only six of these species had perished, while a number, in this their first summer, had blossomed and borne fruit. The unusually heavy snow-fall of the winter of 1890–1891 did not decrease the list, and since then about two hundred additional species have been planted.

From experiments made at the agricultural station of the Maine State College it has been found that disturbing the roots of Cabbage in transplanting appears to have no marked effect on the size of the head, and that the best results are obtained by frequent transplanting. A good Cabbage has a short stem; the leaves placed close together with short petioles, thus leaving little open space about the stem. The blade should be large enough to extend more than half-way around the head, to avoid the soft spot often seen in the centre. Firm, solid heads are less subject to the attacks of the cabbage-worm than loose, open ones.

Gartenflora recommends the winter-feeding of birds by fruit-cultivators, as a means of decreasing the ravages of insects on their trees. In many parts of Austria, it says, at the approach of winter, a circle of evergreen-branches is formed by sticking their butts firmly in the earth. The ground within the circle is covered by boards, and then other branches are laid across, so as to form a light roof for the enclosure. Seeds, bread crumbs, etc., are scattered on the boards, and the birds, quickly finding their way to the food through the interstices of the evergreens, are protected against wind, snow and the attacks of animals, and in the spring are ready to pay their debt by vigorous assaults upon the insects of the orchard.

It is pleasant to find that in *Far and Near*, the excellent and interesting monthly journal which is edited in this city by Miss Chapin for the Association of Working Girls' Societies, frequent attention is paid to the way in which plants and flowers can augment the joy of existence, even among the toilers in large towns. A year ago this journal contained a wisely suggestive article on roof gardens—a subject which has since been brought to general attention in our daily papers, and in the current number for May we note a very good paper by Miss Newell, called the "Growth of Spring Flowers," which is a simple account of the manner in which plants awaken to life in the spring, illustrated by an analysis of the Violet, with directions how to examine its internal structure. Such readers as had heretofore admired only the more obvious beauty of flowers, without noticing their hidden charms of structure, or considering their manner of development, ought to be won to a new and deeper interest by this simple lesson, and it is to be hoped that the writer will continue her teaching in *Far and Near*, taking up other familiar flowers in their successive seasons.

A few of the gardens in the immediate neighborhood of Boston have been beautiful from the profuse flowering of the various forms of small Apple-trees which have been introduced into them principally through the agency of the Arnold Arboretum. It is surprising that these plants are not better known and more generally planted. When in flower no trees are more beautiful; they are perfectly hardy, and flower freely every year; they improve with age, and are unattacked by disfiguring insects with the exception of Tent-caterpillars; they grow rapidly, and, once established, never fail to flower. Many of them, too, are beautiful in the autumn and winter, owing to the abundant and often showy fruit which covers their branches. The most desirable are forms of the widely distributed and polymorphous Pyrus baccata, a native of eastern and northern Asia, and of these forms the most beautiful, perhaps, is the plant sold in nurseries as P. Malus floribunda, a favorite in Japanese gardens, whence, some twenty years ago, it was introduced into Europe by Siebold. This plant is particularly beautiful before the flowers expand, as the flower-buds are bright red; when these open they disclose the white inner surface of the petals, which make a charming contrast with the red buds nearer the extremity of the branches. Other varieties produce pure white flowers, and the plant known in gardens as P. Parkmanni or P. Halliana, rosy pink semi-double flowers, which hang on long red stalks. Hardly less beautiful is the Chinese P. spectabilis with semi-double pink flowers, and the Siberian Crab (P. prunifolia), with white or rose colored flowers. These are followed by our native species, P. coronaria, the latest of all the Apples to bloom, and distinguished by the delicious fragrance of its large pink flowers. No garden of hardy plants in the northern states is complete without a collection of these little trees, which, to display their full beauty, require good soil and abundant space for the development of their spreading branches.

When the opinion was generally held that the Sugar-cane never produced seed, it was believed that the numerous varieties which existed in the world had originated by bud variation. Since the discovery, or rediscovery, of the seminal fertility of the cane it has been found that seedlings of recorded parentage show in most cases some characteristics of relationship to the parent stock; nevertheless the variation is wide, and there is no doubt, from what has been learned in the past few years, that the different varieties of cultivated cane have come from self-sown seeds which sprang up and produced plants which were unobserved during the first year or two of their growth. Of course, this tendency of seedlings to vary is the essential condition of possible improvement under cultivation, and undoubtedly the cane will now be improved under the hands of careful cultivators and breeders of new types. The process of selection, however, must be slow, because seedling canes take, as a rule, two years to mature. The cane flowers in the autumn, and the majority of the seedlings even of an early variety, will need fully twelve months before they can flower. In the botanical gardens of British Guiana, as we learn from a late report, seedlings have been produced with stalks not larger than a stout lead-pencil and weighing only two or three ounces each. On the other hand, the largest variety has grown to a height of more than twenty feet, with fifteen feet of clear cane to each mature stalk, each one weighing as many pounds—that is to say, each foot-length of cane averages a pound in weight, and the total weight of canes from one stool was at least 650 pounds. Some seeds of the smaller varieties show a remarkable tendency both to reversion and improvement. Seedlings from the same parent cane in the same season have yielded plants ranging from a stalk weighing but six ounces, when topped, to one weighing seventy-six pounds. This means that if these plants were set as usual, at the rate of 2,178 to the acre, the former would produce 817 pounds, while the latter would yield seventy-four tons.

The death of the Abbé Léon Provancher, in his seventy-second year, occurred not long ago. He was born at Becancour, in the Province of Quebec, in 1820, and for some years was the curé of Portneuf. Compelled by delicate health to retire from the active duties of his ministry, he settled at Cap Rouge, near Quebec, and devoted the remainder of his life to the study of natural science. In 1869 Provancher commenced the publication of the *Naturaliste Canadien*, of which twenty volumes appeared, and was then abandoned owing to the refusal of the Government of Quebec to continue the annual grant which had made its existence possible. Provancher, who published much on entomology, is known to botanists by an elementary treatise on that science, published in 1858, and by his *Flore Canadienne*, a comprehensive work, published in 1862. Later he began the publication of his *Fauna Entomologique du Canada*, of which three volumes were completed. His writings include also an account of a pilgrimage to Jerusalem, a journey in the West Indies, and treatises on agriculture. He was the author of many new species and genera of insects, particularly of Hymenopetra and Hemiptera.